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Resident Willingness to Pay for Expanded Cleanup and Enforcement of Illegal Dumping Laws

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Introduction

Common resources are resources that may be used by all residents, including regional and city parks, wilderness areas, and Forest Service and Bureau of Land Management public lands. A plight of common resources is that they can be subject to overuse or inappropriate use, which has the effect of reducing the enjoyment or ability to use the resource by other parties, thus creating a negative externality. Illegal dumping, i.e., the disposal of trash and other consumer goods on private or public lands, is a negative externality because its effects are not compensated or paid for by the illegal dumping offender and therefore it generates a cost to society.

Illegal dumping poses risks to human, animal, and environmental health and safety on public lands. Dumpsites on public lands, considered a form of vandalism, are unattractive and negatively affect the outdoor experience of public land users, while dumpsites near residential neighborhoods may reduce home values (EPA, 1998). Dumped items can lead to water and air pollution or contamination, and create brush fire hazards. Illegally dumped vehicles, fencing, and electronic equipment can cause harm to both domestic and wild animals that may be cut, become entwined, or be exposed to chemicals. Additionally, lost revenue in the form of foregone dumping fees and vehicle scrapping (metal and parts) may result.

According to the EPA Illegal Dumping Prevention Guidebook (EPA, 1998), illegal dumping typically occurs in areas with limited access to convenient, affordable waste disposal and recycling facilities and in areas with a high population of renters. The report also states that illegal dumping is common on unsecured properties, undeveloped lots, unused facilities, abandoned structures, remote spaces, poorly lit roads, highways, alleys, construction sites, public areas, border areas, and rural areas. In rural areas, the incidence of dumping may be attributed to long-standing common practice, or might be a result of a lack of



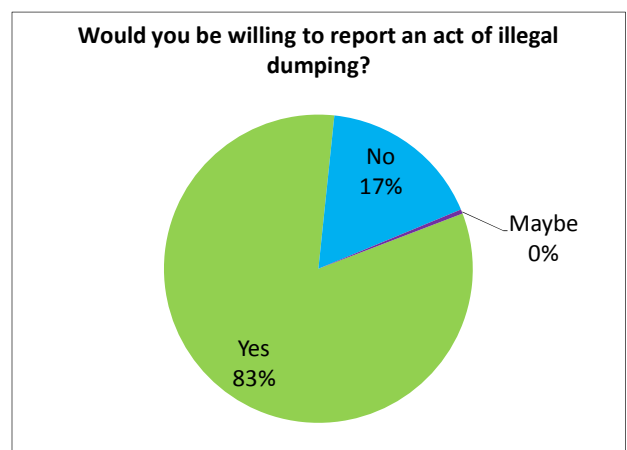
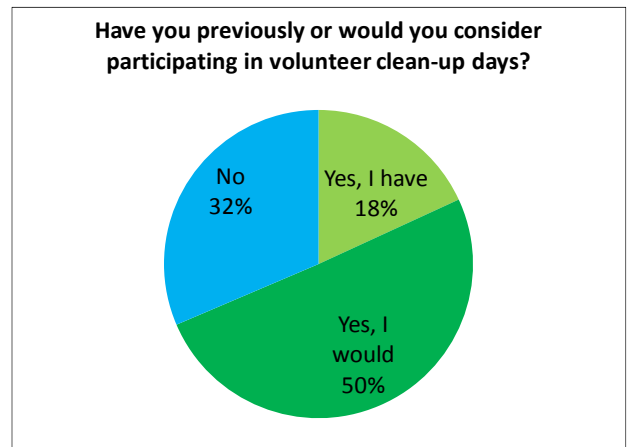
routine or affordable waste pickup service. Landfills and transfer stations with minimum tipping fees or minimum load sizes, or which are perceived to have an inconvenient location or exorbitant disposal fees, may also increase the incidence of illegal dumping. Additionally, materials that are prohibited from landfills are often dumped illegally.

In an effort to better understand the motivations behind illegal dumping, as well as to assess resident perceptions of illegal dumping, Keep Truckee Meadows Beautiful (KTMB), a Northern Nevada nonprofit agency approached researchers in the University of Nevada, Reno's Department of Resource Economics to ask for their assistance in creating and administering a resident survey. A student service learning project was created in which students in the 100-level resource economics class in the Fall of 2009 studied the economic and environmental issues surrounding illegal dumping, conducted an in-person survey of 452 residents, and presented basic survey results to KTMB and the Illegal Dumping Task Force. This publication provides an overview of selected survey results to include resident willingness to pay and participate in illegal dumping cleanup, as well as improved enforcement of illegal dumping laws and/or prosecution of illegal dumping offenders. This information may be helpful to policy makers and land managers in assessing the potential revenue generation of illegal dumping policies and volunteer recruitment.

Resident Willingness to Participate in Illegal Dumping Cleanup and Offense Reporting

Respondents to the survey were asked whether they have ever participated in a volunteer cleanup, or would be willing to do so. Approximately 18% (83 respondents) had participated in the past, 50% (231 respondents) would participate in the future, and 32% (144 respondents) were not interested in participating. This result is encouraging as it shows that among survey respondents, a large portion, 68% would be willing to participate in illegal dumping cleanup.

Respondents were additionally asked whether they would be willing to report an act of illegal dumping. Of the respondents 83% (372 respondents) would be willing, 17% (77 respondents) would not be willing, and less than 1% (2 respondents) would consider it.



Resident Willingness to Pay for Expanded Illegal Dumping Cleanup and Law Enforcement

Like other common resource externalities, government policy options may serve to alleviate the incidence of illegal dumping. Essentially, these options internalize the externality by passing the cost onto society through taxes, fees, and permits (outlined in Mankiw, 2007). Taxes may be instated to pay for dump site cleanup or regulate the common resource through law enforcement and prosecution of illegal dumping offenders. Fees or permits may be also levied on the use of a common resource; U.S. National parks and monuments provide an example. The most drastic

option is to subdivide public lands and convert them to private property.

Respondents to survey were presented with three hypothetical scenarios the local government might undertake in an effort to address the issue of illegal dumping: a tax/fee collected with waste management charges or property ownership taxes to pay for the cleanup of illegal dumping sites on public lands; a tax/fee collected with waste management charges or property ownership taxes to pay for increased law enforcement and prosecution of illegal dumping offenses; and a public lands use permit that would restrict use of public lands to permit holders, with the fees collected from the permit dedicated to the regulation and cleanup of illegal dump sites.

After the respondents were presented with an overview of the three scenarios, they were presented with a dollar amount and were asked to specify whether or not they would be willing to pay said amount. If they were unwilling to pay that amount, they were asked to provide an amount they felt they would be willing to pay. There were six versions of the survey presenting three different levels of payment amounts. On all surveys, the dollar amounts were presented in both monthly and annual contexts to increase the ease of understanding for respondents. The annual and monthly dollar amounts the survey respondents were willing to pay for each of the three options are presented in the following table.

Willingness to Pay Estimation	Annual Estimate	Monthly Estimate
Willingness to pay for illegal dump site cleanup on public lands	\$3.78	\$0.315
Willingness to pay for increased law enforcement and prosecution of illegal dumping offenders	\$3.89	\$0.324
Willingness to pay for a public lands use permit, with proceeds assigned to illegal dump site regulation and cleanup on public lands	\$23.12	\$1.93

Option 1: Survey respondents' willingness to pay for the cleanup of illegal dumping sites on public lands was estimated as \$3.78/year, or \$0.315/month. A total of 351 respondents (78% of the survey sample) were willing to pay some amount for this option. The highest amount a respondent was willing to pay was \$18.00/year.

Option 2: Survey respondents' willingness to pay for increased law enforcement and prosecution of illegal dumping offenders was estimated as \$3.89/year, or \$0.324/month. A total of 319 respondents (71% of the survey sample) were willing to pay some amount for this option. The highest amount a respondent was willing to pay was \$25.00/year.

Option 3: Survey respondents' willingness to pay for the hypothetical public lands use permit was estimated as \$23.12/year, or \$1.93/month. A total

of 250 respondents (55% of the survey sample) were willing to pay some amount for this option. The highest amount a respondent was willing to pay was \$75.00/year.

It should be noted that implementation of a public lands use permit would create additional costs for public lands managers, as the permit would only be an effective way of garnering fees if it was strictly enforced. As such, this option would require a cost benefit analysis before implementation. Evidence of support for the permit option is shown in the table below. The table outlines the percentage of respondents who stated they participate in recreational activities on public lands frequently and were also willing to pay at least some amount for the hypothetical lands use permit. Depending on the recreational activity, respondent willingness to pay for the permit ranged from 38-55%.

Activity	Number of Respondents Who Participate in Activity	Number of Respondents Willing to Pay for Permit	Percentage of Respondents Willing to Pay for Permit
Hiking/Running	293	117	40%
Biking	207	95	46%
Fishing	182	82	45%
Camping	269	111	41%
Hunting	113	43	38%
ATV sports	118	58	49%
Horseback riding	67	37	55%
River sports	196	83	42%

Conclusions

Based upon the results of a resident survey conducted in Nevada, we find that residents would generally be willing to pay a tax or fee for both illegal dump site cleanup and law enforcement/prosecution of illegal dumping offenders. However, the second option was slightly more popular with a higher willingness to pay of 11 cents/year. This result is consistent with research results indicating that the ability to identify a negligent party that may be able to pay restitution for his/her offenses will lower the public's willingness to pay for corrective action (Bulte et al., 2005). Additionally, 68% of survey respondents would volunteer for illegal dump site clean-up days. This information may be used in the future to support a proposal to increase either residential taxes or trash collection fees to expand cleanup and/or enforcement of illegal dumping offenses, as well as assess the potential revenue

generation of illegal dumping policies and volunteer recruitment.

Resources

- Bulte, E., Gerking, S., List, J., and A. de Zeeuw (2007). "The effect of varying the causes of environmental problems on stated WTP values: evidence from a field study." *Journal of Environmental Economics and Management* 49: 330-342.
- Mankiw, N.G. (2007). *Principles of Microeconomics*, 4th edition. Thomson South-Western: Mason, OH.
- United States Environmental Protection Agency (1998). "Region 5 Illegal Dumping Prevention Guidebook." Publication Number EPA905-B-97-001. Online. Available at: http://www.epa.gov/reg5rcra/wptdiv/illegal_dumping/downloads/il-dmpng.pdf.

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